

Application No. 10/814,457
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CLAIMS:

1. (Withdrawn) A method for making a razor blade having a non-linear cutting edge comprising the steps of: providing a substrate; applying a coating layer onto at least one surface of said substrate to form a razor blade blank; etching the coating layer to define a plurality of substantially co-planar cutting edge patterns collectively forming a non-linear cutting edge on the razor blade blank, each of said cutting edge patterns defining an exterior edge having a sharpness sufficient to cut hair; and removing a portion of the substrate so that the exterior edges of said cutting edge patterns are offset from the substrate.
2. (Withdrawn) A method as defined by claim 1, wherein the step of applying a coating layer includes applying at least one of a diamond, ceramic, metal, oxide, nitride, carbide, silicon dioxide, titanium nitride, chromium nitride and titanium carbonitride.
3. (Withdrawn) A method as defined by claim 1, wherein the step of applying a coating layer of material comprises depositing the coating layer onto said at least one surface of said substrate using chemical vapor deposition.
4. (Withdrawn) A method as defined by claim 3, wherein the step of depositing the coating layer includes depositing a layer of a diamond material.
5. (Withdrawn) A method as defined by claim 1, wherein the step of etching the coating layer comprises at least one of plasma etching, reactive ion etching, chemical etching, electrochemical etching and chemical-mechanical polishing.
6. (Withdrawn) A method as defined by claim 5, wherein the step of etching the coating layer comprises plasma etching.
7. (Withdrawn) A method as defined by claim 5, further comprising the step of grinding the cutting edge patterns.

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8. (Withdrawn) A method as defined by claim 1, wherein the substrate comprises at least one of silicon, metal, amorphous metal, ceramic, polymeric material, amorphous glass and silicon dioxide.
9. (Withdrawn) A method as defined by claim 1, wherein the step of etching the coating layer further comprises the step of varying the sharpness along the exterior edge of each cutting edge pattern.
10. (Withdrawn) A method as defined by claim 9, wherein the sharpness of each cutting edge pattern is defined by a blade tip radius along the exterior edge of each said cutting edge pattern.
11. (Withdrawn) A method as defined by claim 10, wherein the blade tip radius for each said cutting edge pattern is between about 300 and about 700 angstroms.
12. (Currently amended) A razor blade having a non-linear cutting edge, said razor blade comprising: a substrate comprising at least one of silicon, amorphous metal, ceramic, polymeric material, amorphous glass and silicon dioxide, the substrate having a first outer surface and a second, generally parallel, outer surface, the first and second outer surfaces defining a region therebetween; a coating layer applied to at least one of the first or second outer surfaces of said substrate, said coating layer having a plurality of substantially co-planar cutting edge patterns, each cutting edge pattern defining an exterior edge having a sharpness sufficient to cut hair; wherein the exterior edges of the cutting edge patterns collectively form the non-linear cutting edge, and wherein the cutting edge patterns are located outside the region bounded by the parallel first and second outer surfaces of the substrate.
13. (Canceled)

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14. (Original) The razor blade of claim 12, wherein the cutting edge patterns have substantially uniform sizes and shapes.
15. (Original) The razor blade of claim 14, wherein said cutting edge patterns are serrations, each defining a crest, a first side, a second side, and, in combination with an adjacent cutting edge pattern, a trough.
16. (Original) The razor blade of claim 14, wherein each of said cutting edge patterns is scallop-shaped defining a crest, a first side, a second side, and, in combination with an adjacent cutting edge pattern, a trough.
17. (Original) The razor blade of claim 14, said cutting edge patterns ranging on the order of about 100 to about 2,600 per linear inch.
18. (Original) The razor blade of claim 14, the periodic distance between adjacent cutting edge patterns ranging between about 10 and about 200 microns.
19. (Original) The razor blade of claim 14, the amplitude of each cutting edge pattern ranging between about 10 and about 100 microns.
20. (Original) The razor blade of claim 12, wherein the coating layer comprises at least one of a diamond, ceramic, metal, oxide, nitride, carbide, silicon dioxide, titanium nitride, chromium nitride and titanium carbonitride.
21. (Canceled)
22. (Canceled)
23. (Previously presented) The razor blade of claim 12, wherein the sharpness of each cutting edge pattern is defined by a blade tip radius of the exterior edge thereof.

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24. (Original) The razor blade of claim 23, wherein the blade tip radius is in the range of between about 300 and about 700 angstroms.
25. (Previously presented) The razor blade of claim 12, wherein the cutting edge patterns have substantially uniform sizes and shapes, each defining a crest, a first side, a second side, and, in combination with an adjacent cutting edge pattern, a trough.
26. (Canceled)
27. (Original) The razor blade of claim 12, wherein each cutting edge pattern is provided with a plurality of micro-patterns.
28. (Original) The razor blade of claim 12, wherein the cutting edge is single-faceted.
29. (Withdrawn) The razor blade of claim 12, wherein the cutting edge is double-faceted.
30. (Canceled)